

WHAT IS CLAIMED:

1. A low profile hacksaw comprising:
 - an elongated blade having opposing longitudinal end portions and a cutting edge between said longitudinal end portions;
 - a hacksaw frame assembly comprising a rigid I-beam frame member with upper and lower end caps and a generally vertical web member extending therebetween, said frame member having a forward end portion, a maximum height portion, and an arcuate portion extending substantially the entire length between said forward end portion and the maximum height portion and curving downwardly and forwardly towards said forward end portion to provide said hacksaw with a lower overall height at the forward end portion of said frame member than at the maximum height portion, said maximum height portion being defined at the point where both the distance between said blade and said lower end cap is a maximum and the arcuate portion begins its downward and forward curvature;
 - a first blade mounting structure carried by the hacksaw frame assembly, one of said longitudinal end portions of said blade being removably mounted on said first blade mounting structure;
 - a releasable blade tensioning device carried by the hacksaw frame assembly and providing a second blade mounting structure on which the other of said longitudinal end portions of said blade is removably mounted, said blade tensioning device being movable to (a) affect relative tensioning movement between said first and second blade mounting structures to tension said blade in the longitudinal direction thereof, and (b) to affect relative releasing movement between said first and second blade mounting structures to release the tension to allow for removal and replacement of said blade;
 - one of said first and second blade mounting structures being provided on said forward end portion of said frame member such that the tension in said blade caused by the relative tensioning movement of said blade mounting structures applies a rearwardly directed load to said forward end portion to create a bending moment

which is distributed along said arcuate portion with said upper end cap along said arcuate portion being subject to tension and said lower end cap along said arcuate portion being subject to compression so that said upper and lower end caps cooperate to resist deflection of said frame member; and

said hacksaw frame assembly further comprising a manually engageable handle connected to said frame member for being manually grasped to enable performance of a cutting operation wherein the cutting edge of the tensioned blade is engaged with a work piece and moved forwardly and rearwardly to cut the work piece.

2. A low profile hacksaw according to claim 1, wherein the arcuate portion of said frame member is defined along at least one arc having a center of curvature located below said blade when said hacksaw is oriented in an upright position with the cutting edge of the blade facing downwardly.

3. A low profile hacksaw according to claim 2, wherein the lower end cap of said I-beam frame member extends arcuately from a rearward end portion of said frame member to the forward end portion of said frame member along a portion of the circumference of a first imaginary circle having a first centerpoint located below said blade when said hacksaw is oriented in an upright position with the cutting edge of the blade facing downwardly, said maximum height portion being defined at said rearward end portion;

said upper cap of said I-beam frame member extending arcuately from the rearward end portion of said frame member to the forward end portion of said frame member along a portion of the circumference of a second imaginary circle having a second centerpoint located below said blade.

4. A low profile hacksaw according to claim 3, wherein the radius of said second imaginary circle is greater than the radius of said first imaginary circle.

5. A low profile hacksaw according to claim 4, wherein said first and second centerpoints are spaced apart from one another.

6. A low profile hacksaw according to claim 5, wherein the radius of said first imaginary circle is between 8 and 18 inches.

7. A low profile hacksaw according to claim 6, wherein the radius of said second imaginary circle is between 10 and 20 inches.

8. A low profile hacksaw according to claim 7, wherein the radius of said first imaginary circle is approximately 12.7 inches.

9. A low profile hacksaw according to claim 7, wherein the radius of said second imaginary circle is approximately 10.75 inches.

10. A low profile hacksaw according to claim 1, wherein said frame member is metal.

11. A low profile hacksaw according to claim 10, wherein said handle is formed integrally with said frame member as a one-piece construction with said frame member extending forwardly from said handle.

12. A low profile hacksaw according to claim 11, wherein said handle has a deformable gripping material formed thereon to enhance manual grasping and comfort.

13. A low profile hacksaw according to claim 12, wherein said handle has an opening formed therethrough and a rear gripping portion adjacent said opening, said handle being constructed and arranged such that a user can manually grasp said handle by inserting his fingers through said opening and gripping said gripping portion.

14. A low profile hacksaw according to claim 13, wherein said handle has a hollow interior.

15. A low profile hacksaw according to claim 1, wherein said blade tensioning device comprises:

a lever pivotally mounted to said handle, said lever providing the second blade mounting structure to which the other opposing end portion of said blade is removably mounted;

a tensioning mechanism constructed and arranged to (a) pivot said lever in a tensioning direction to affect relative movement between said blade mounting structures and thereby tension said blade and (b) fix said lever with respect to said handle to thereby maintain the tension in said blade.

16. A hacksaw according to claim 2, wherein said at least one arc comprises only one arc which extends substantially the entire length of said arcuate portion.

17. A low profile hacksaw according to claim 2, wherein said handle is formed integrally with said frame member as a one-piece construction with said frame member extending forwardly from said handle.

18. A low profile hacksaw according to claim 17, wherein said handle has a deformable gripping material formed thereon to enhance manual grasping and comfort.

19. A low profile hacksaw according to claim 18, wherein said handle has an opening formed therethrough and a rear gripping portion adjacent said opening, said handle being constructed and arranged such that a user can manually grasp said handle by inserting his fingers through said opening and gripping said gripping portion.

20. A low profile hacksaw according to claim 19, wherein said handle has a hollow interior.

21. A low profile hacksaw according to claim 2, wherein said blade tensioning device comprises:

a lever pivotally mounted to said handle, said lever providing the second blade mounting structure to which the other opposing end portion of said blade is removably mounted;

a tensioning mechanism constructed and arranged to (a) pivot said lever in a tensioning direction to affect relative movement between said blade mounting structures and thereby tension said blade and (b) fix said lever with respect to said handle to thereby maintain the tension in said blade.

22. A low profile hacksaw according to claim 21, wherein said lever has an opening formed therethrough and wherein said tensioning mechanism comprises a threaded rod with a head fixed on one opposing end thereof and a structure defining a threaded bore located within said handle,

said rod being inserted through the opening formed through said lever with said head engaging said lever and the other opposing end portion thereof opposite said head threadingly received within said threaded bore such that (a) rotating said rod in a tightening direction causes said head to engage said lever and pivot said lever in the tensioning direction to tension said blade and (b) rotating said rod in a loosening direction opposite said tightening direction allows said lever to pivot in a releasing direction opposite said tensioning direction to release tension in said blade.

23. A low profile hacksaw according to claim 1, wherein said first blade mounting structure is provided on said forward end portion of said frame member.